

ARCHIVES OF PEDIATRICS

A MONTHLY DEVOTED TO THE
DISEASES OF INFANTS AND CHILDREN

JOHN FITCH LANDON, M.D., Editor

LEADING ARTICLES IN THIS NUMBER

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Convulsions. Report of Case.**

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**A New Sulfonamide in the Treatment of Infantile
Dyspepsia.**

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Infants.**

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Clinical Pathological Conference, Willard Parker Hospital. 526

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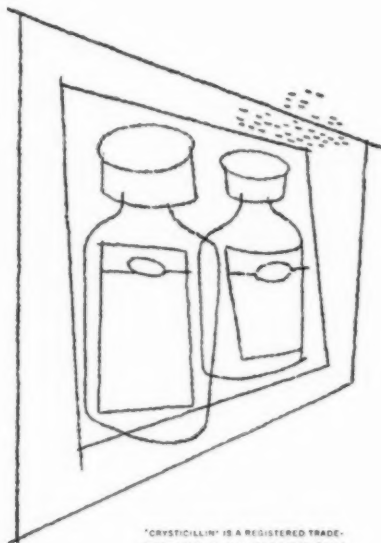
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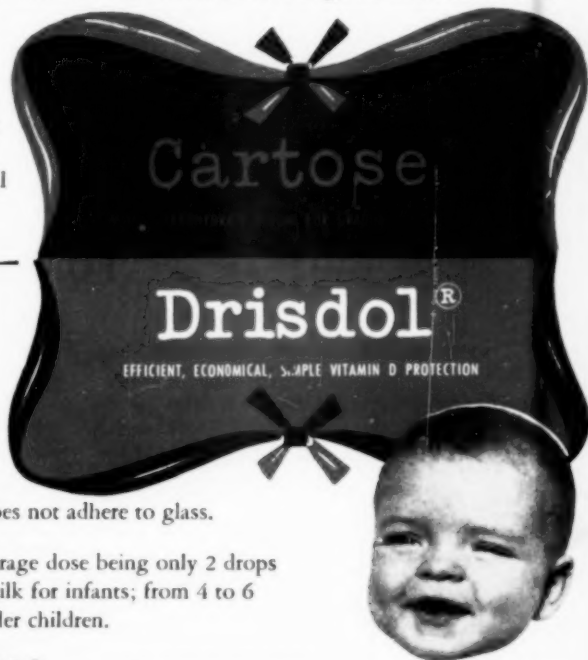
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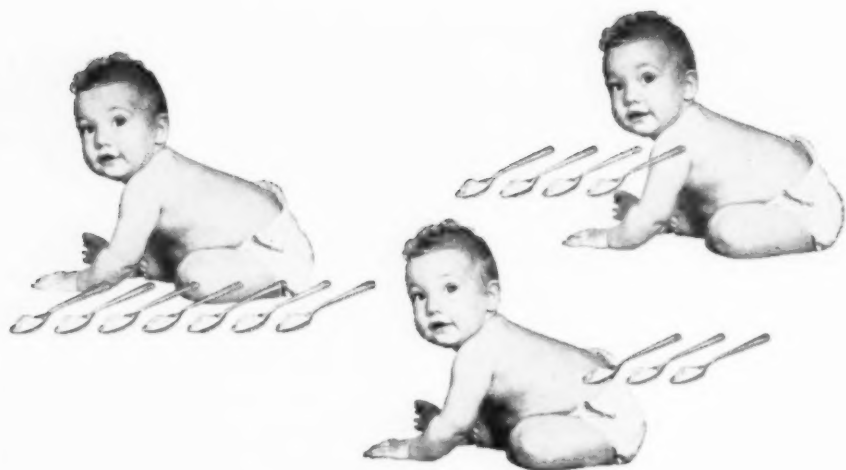
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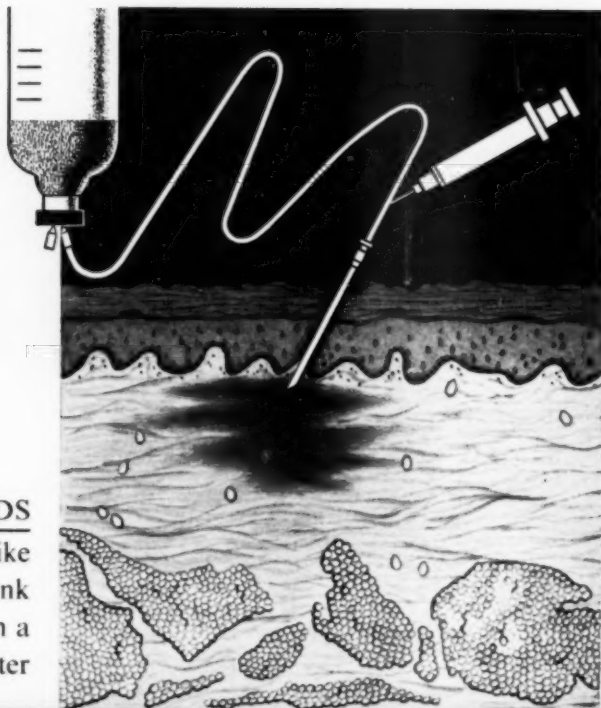


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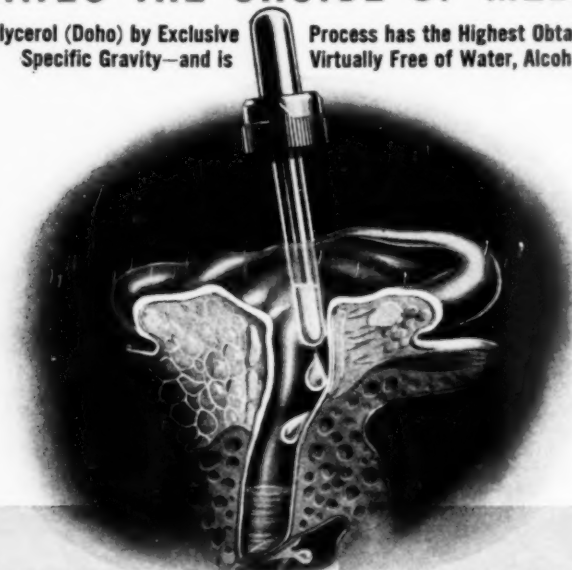
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ARCHIVES OF PEDIATRICS

VOL. 66

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TRANSIENT HEMIPLEGIA ASSOCIATED WITH FEBRILE CONVULSIONS*

REPORT OF CASE

JOSEPH SCHWARTZMAN, M.D.

New York.

Accompanying or subsequent to convulsions of febrile origin, almost anything can be encountered from coma, to irritability, to paralysis. However, it is rather uncommon to have a transient hemiparalysis following the convulsion. In view of the rarity of such an occurrence, the following case is reported.

CASE REPORT

S. R., a 10-month Puerto Rican female infant, was admitted on February 9, 1949 with a history of having received an injection for her cough on the previous day at another hospital. The following day the child was admitted in a convulsive and unconscious state with a temperature of 103° F. The patient was comatose with twitchings of the left side of the body, while the right half was limp and motionless. Nystagmus and twitchings of the eyelids were noted. The pupils were equal and reacted to light. Abdominal reflexes were absent, deep reflexes were diminished, and there was a loss of sensory reflexes on the right side from the forehead down to the sole of the right foot. No Kernig or Brud-

* From the Pediatric Department of the New York Medical College, Flower and Fifth Avenue Hospitals, and Metropolitan Hospital, Department of Hospitals, New York City.

zinski signs were elicited but a Babinski was obtained on the left foot at first and several hours later on the right. The tonsils were enlarged and injected, and numerous coarse and sibilant râles were audible bilaterally. The spleen was slightly palpable and hard. In view of the above, the impression was:

1. Acute tonsillitis and otitis media.
2. Bronchopneumonia.
3. Febrile convulsions.
4. Right hemiplegia.

A spinal tap revealed clear fluid under a pressure of 240 mm. of water with 1 cell per cubic millimeter. The Pandy was negative, smears and cultures were negative, the colloidal gold curve was normal, sugar was 94 mgm., chlorides 695 mg., and the protein 23 mg. per 100 cc. The blood count revealed 10,900 white blood cells with 50 per cent polynuclears, 48 per cent lymphocytes and 2 per cent mononuclears. The blood culture was negative, blood sodium 144 milliequivalents, blood potassium 4.3 milliequivalents, blood calcium 10.3 mg. and the sedimentation rate was 30 mm. per hour (Westergren method). An x-ray of the chest revealed an increase in pulmonary markings, especially at the right base.

The patient was placed in an oxygen tent and given sodium phenobarbital 0.1 Gm. intramuscularly to control the convulsions, and adrenalin 0.5 cc. and coramine 1 cc. to counteract the comatose state. 150,000 Units of penicillin was given stat followed by 50,000 Units every 3 hours for 4 days and then 200,000 Units every 12 hours for 4 more days. Triple sulfonamides were given for the first 4 days and 1 cc. of adrenal cortex every 6 hours. Within 24 hours the child showed clinical improvement with diminution of the paralysis, but the lung findings persisted. Forty-eight hours after admission, no further evidence of paralysis could be noted but râles were still audible in the chest. By February 15 these had cleared and two days later all medication was discontinued. No further evidence of any pathology was noted and the infant was discharged in excellent condition on February 28, 1949.

COMMENT

In reviewing the literature for the past few years, no similar occurrence could be discovered. However, meningismus¹ can create a picture similar to the one described, for it occurs most

frequently at the onset of acute infections, especially of the respiratory tract, is more common in infants and young children, and most frequent during autumn and winter. In meningismus, as in this case, the cerebrospinal fluid is normal except for a moderate increase of sugar which may be concomitant with a rise in the blood sugar often associated with the onset of acute infections.

In analyzing the present case, it was felt that the most likely possibility was the production of areas of focal edema and hyperemia of the brain which accompanied the convulsion, resulting in the above described picture. As the brain changes resolved the clinical picture followed suit.

SUMMARY AND CONCLUSION

1. A case of transient hemiplegia associated with febrile convulsions is reported.

2. Convulsions should be controlled as quickly as possible or irreparable brain damage may result. The prognosis should be modeled with caution since it may be difficult to evaluate the future in the role of the present.

REFERENCE

1. Levinson, A.: Meningism. Brennemann's Practice of Pediatrics, Vol. IV, Chap. 8, pp. 70-71, 1948.

PNEUMONIA IN THE NEWBORN FROM INHALATION OF GASTRIC CONTENTS. (Archives of Disease in Childhood, London, 23: 254, Dec. 1948). Rhane and Macgregor, in the course of performing postmortem examinations in cases of neonatal death, noted occurrence of pneumonia with certain special features, which they believe to be caused by the aspiration of stomach contents. An extensive survey of the available literature revealed that little attention had been devoted to this condition. The authors analyze clinical and necropsy data from 41 cases observed between 1939 and 1946. The main pathologic features were extensive consolidation with hemorrhage and a tendency to suppuration. Microscopically, digestion of tissues and lysis of blood in relation to aspirated material were characteristic. Attention is drawn to predisposing factors with particular reference to prematurity. There seems to have been an increase in the condition during the last two years under review, and it is assumed that this may be related to a shortage of the nursing staff.—*Journal A.M.A.*

A NEW SULFONAMIDE IN THE TREATMENT OF INFANTILE DYSPEPSIA*

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In Egypt, dyspepsia is a common disease among infants and young children. According to the statistics of the Children's Hospital, Fouad 1st University, Cairo, of 222,724 patients treated in the out-patient department during 1946, 68,704 were cases of dyspepsia. This represents 30.8 per cent of the total number of out-patients for 1946.

Of 2,230 patients admitted to the hospital during the same period, 295 were cases of dyspepsia, mostly toxic. The mortality rate in both the toxic and simple types was 29 per cent.

In 1941, the statistics of the same hospital showed the admission of 354 cases of dyspepsia with a 50 per cent mortality, including both toxic and simple cases; in the toxic cases (188), however, the mortality was higher—68 per cent. This marked drop in the number of fatal cases in recent years is largely due to the introduction of the sulfonamides in the treatment of this disease. Sulfapyridine, sulfathiazole, sulfaguanidine, sulfasuxidine, etc. have all been employed with varying degrees of success in the treatment of both toxic and simple forms.

The present study relates to our experience with a new sulfa compound (Formo-Cibazol) in the treatment of infantile diarrhea. This compound is a condensation product of two molecules of sulfathiazole (Cibazol) and three molecules of formaldehyde with the formula $C_{21}H_{22}O_6N_4S_4$. The molecular configuration has not yet been elucidated.

In our bacteriological investigations with the drug, the preliminary results showed a definite bacteriostatic effect in vitro on same strains of *B. coli*, sh. dysentery, *Eb. typhosus* and salmonella but our investigations have not yet been completed.

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Formo-Cibazol was introduced and kindly supplied to us by Ciba Ltd., Basle, Switzerland.

CLINICAL TRIALS

Analysis of the Cases. In all, 100 cases were treated. Table 1 summarizes some of the salient features.

TABLE 1

Clinical Picture		Sex		Age	Feeding				Duration of Dyspepsia Before Therapy		
Toxic	Simple	M.	F.		Breast	Bottle	Both	Weaned	Less than 1 week	1-2 weeks	+2 weeks
9	91	64	36	2 months to 2 Years	19	6	37	18	70	21	9

All the simple cases had diarrhea in varying degrees of severity; also in many vomiting, anorexia, colic, sleeplessness, slight pallor and abdominal distention.

The toxic ones were overt cases showing all the typical signs: dehydration, fever, tympanism, a variable degree of peripheral circulatory failure and mild nervous symptoms. All were breast fed except one, who was bottle fed and one, who was both. All, except one, were below one year of age.

Both simple and toxic cases included some in which the colon was involved as manifested by blood and mucus in the stools and tenesmus during defecation. To these cases (21) the term enterocolitis was applied in order to distinguish them from specific dysenteric cases.

Secondary Infections. In 33 cases the condition was complicated by nasopharyngitis (21), bronchitis (10), otitis media (1) and bronchopneumonia (1).

Except in the case of bronchopneumonia the infection ran a mild course. The plan of treatment was simple and in no instance were sulfa drugs or penicillin necessary. In all these cases the dyspepsia preceded the onset of the complicating infection by a sufficiently long time to show that it was the primary condition.

Laboratory Findings. (1) Examination of feces: Stools were collected by swabbing the rectum, using a sterile swab in order

to eliminate as far as possible extraneous contamination. (a) Films were examined for protozoa and flagellates; results were negative in all cases. (b) Cultures were prepared on enriched and selective fluid and solid media. Various organisms, other than *B. coli*, were isolated; in some cases more than one organism was found. The results were as follows:

<i>Streptococcus fecalis</i>	9 cases
<i>B. lactis aerogenes</i>	6 "
<i>B. proteus Morgani</i>	2 "
<i>Fecalis alkaligenes</i>	1 "
<i>Shigella Sonne</i>	1 "
<i>Staphylococcus albus</i>	2 "
<i>Streptococcus fecalis</i> + <i>proteus Morgani</i>	1 "
" " + " <i>vulgaris</i>	1 "
" " + yeast	2 "
" " + <i>alkaligenes</i>	2 "

(2) Blood cultures: On the assumption that toxic cases may be associated with bacteremia, blood cultures were made in 15 cases. The cultures were always sterile.

(3) Blood count: Total and differential white cell counts were carried out in 60 cases not associated with other infections. Although no definite conclusions could be drawn from these counts, yet a tendency to mild leukocytosis with a slight increase in the neutrophil polymorphs was observed.

(4) Urinary examination showed no deviation from the normal in those cases, which were examined.

TREATMENT AND RESULTS

(1) Dietetic measures were instituted in all cases. For the first 24 hours, only a 5 per cent solution of sugar was given; during the next 24 hours, 10 per cent rice water with 5 per cent sugar; on the third day, breast fed infants were allowed to feed from the breast every 3 hours for 2 minute periods, which was increased by 2 minutes on every subsequent day.

Bottle fed infants were given Prolac (acidified protein milk) diluted in rice water with sugar, 30 cc. of the mixture every 3 hours, increased by 10-20 cc. on subsequent days.

Infants with supplementary feeds were first fed on the breast and then transferred to Prolac.

(2) Drug therapy:

TABLE 2. Dosage of Formo-Cibazol

36	cases	were	given	0.15	g/kg	body	weight/day	in	divided	doses	4-6	hourly
53	01	01	01	0.20	01	01	01	01	01	01	01	01
8	01	01	01	0.25	01	01	01	01	01	01	01	01
4	01	01	01	0.30	01	01	01	01	01	01	01	01

In two cases the dosage of 0.15 g. per kilogram body weight per day was insufficient and had to be increased to 0.2 g. in one, and 0.25 in the other in order to show results.

Duration of drug treatment: From 4-12 days. Most cases were given the drug for 6-9 days. If, after 7 days, no improvement was noted, treatment was considered unsatisfactory.

In most cases, there was a rapid improvement in the character, frequency and amount of stools, coinciding with an improvement in the general condition of the child, disappearance of anorexia, colic, restlessness and a drop of temperature. This was marked in toxic cases, where dehydration rapidly improved, elasticity of the skin returned to normal and circulatory failures diminished. In the majority of cases, the improvement was associated with a rapid gain in weight. The total number of cases completely cured was 85 (6 toxic and 79 simple). In these the stools returned to normal:

After	2	days	in	11	cases
..	3	..	..	48	..
..	4	..	..	17	..
..	5	..	..	6	..
..	6	..	..	1	..
..	7	..	..	2	..

In another group of 10 cases, there was an improvement in the general condition with an increase of weight together with an improvement in the number, frequency and consistency of stools. We could not regard them as failures nor could we regard them as complete cures because of the persistent mild diarrhea. Unfortunately, we could not follow up these cases for a sufficiently long time. Of this group, two were cases of toxic dyspepsia which improved in every respect except for the persistent mild diarrhea.

and eight cases were suffering from simple dyspepsia and included one case of enterocolitis.

There were five cases classed as failures. On the whole the general condition of the patients remained unchanged in spite of the persistent, moderate or severe diarrhea during the whole seven days of trial therapy and we had to stop the drug and use other therapeutic agents.

Among this group there was one toxic case and one case of enterocolitis.

There was no fatality in any of our series, whether toxic or simple, as compared with a fatality rate of 29 per cent in cases admitted to the hospital during the year 1946.

In the whole series, there were 21 cases of enterocolitis in which bacteriological examination of stools did not reveal the presence of dysentery bacilli, except in one case which showed the presence of *B. Sonne*. The stools took a longer time to return to normal, on an average 4-5 days, while in the ordinary cases of dyspepsia it was between 2 and 4 days. One case showed only some improvement and another case did not respond at all.

Other Therapeutic Measures. In cases with severe diarrhea, chalk and bismuth mixture was given. In some cases a 1 per cent solution of lactic acid plus a 1 per cent solution of sodium citrate was given by mouth. Glucose and saline were given in dehydration together with cortical hormone and vitamin B_1 , and coramine in the toxic cases. Ammonia and benzoate mixture was given for bronchitis and argyrol nasal drops for nasopharyngitis.

Toxicity of the Drug. The tolerance to the drug was good in all cases. No complications developed that could be attributed to the drug. No urinary, blood, or nervous manifestations were observed. The drug did not induce vomiting in any case.

Bacteriostatic and Bactericidal Effects of the Drug. The following comprehensive technique was followed to study the bacteriostatic effect of the drug in vitro:

To melted and cooled agar at 50° C. various dilutions of the drug were added, well mixed, and the medium poured into Petri dishes with a final dilution 1:120, 1:240, 1:400, 1:800, 1:1200, 1:2400, 1:3000. A control plate containing agar alone, as well as the above plates, were inoculated at the same time with various

organisms. The results were read after 24 hours' incubation at 37° C. (Table 3).

TABLE 3. Bacteriostatic Effect of Various Dilutions of Formo-Cibazol on Different Organisms

Organisms	1:120	1:240	1:400	1:800	1:1200	1:2400	1:3000	Control
Eh. typhosus.....	—	—	very few	+ Discrete	+ D	+	+	++
Esch. coli.....	—	—	very few	+	+	++	++	++
B. enteritidis gaertner	—	+	+	+	++	++	++	++
B. proteus vulgaris	—	++	+	++	+	+	++	++
Paratyph. A.....	—	+-	+	+	++	++	++	++
Paratyph. B.....	—	+-	+	+	+	+	++	++
Sh. dysentery (Flexner)	—	—	—	—	—	very few discrete	few discrete	++
Ps. Pyocyanea.....	—	+— no pigment	+— no pigment	+— no pigment	+— no pigment	+ 2 pigment	++ pigment	++
V. Cholerae.....	—	—	—	—	—	very few discrete	very few discrete	++
V. El-Tor.....	—	—	+	+	+	+	++	++

— = no growth; ++ = profuse growth; +— = poor growth; + D = few discrete colonies.

For the study of bactericidal action, in a sterile Wassermann tube 0.5 cc. of a solution containing 10 per cent of the drug was added to 0.5 cc. of a 24-hour broth culture of the organism under investigation and a loop of the mixture was inoculated on to ordinary agar after 1, 2, 3 and 24 hours incubation, and then the plates were incubated for 24 hours. The results are given in Table 4:

TABLE 4. Bactericidal Action of Formo-Cibazol on Various Organisms

	Coli	Typhoid	Para A	Para B	Proteus	Gaertner	Pyocyan	Flexner	Cholera	El-Tor
	Control	C	C	C	C	C	C	C	C	C
1 hour	++++	++	++++	++++	++++	++++	++++	++++	++++	++++
2 hours	++++	++	+fD	++++	++++	++++	++++	++++	++++	++++
3 hours	++++	++	+fD	+++D	+++D	++++	++++	++++	++	++
							no pigment			
24 hours	++++	++	+fD	+++D	+++D	++++	++++	++++	++	++
							no pigment			

f = few. ++ = profuse growth. D = discrete colonies. — = no growth.

It is seen that the bacteriostatic effect of the drug is marked in case of *B. dys.* Flexner; *V. cholerae* and *V. El Tor* Rb. typhosus is acted upon to a lesser extent.

Pigment production is inhibited by the drug in case of *Ps. pyocyanea*.

It is well-known that the differentiation between *V. cholerae* and *V. El-Tor* cannot be achieved on an anti-genic basis, viz. agglutination. A medium is to be prepared when the drug is incorporated in a certain dilution which will allow the growth of the comparatively non-pathogenic *El-Tor* vibrios and inhibit completely the growth of cholera.

The action of the drug in the above dilutions was due to the drug itself and not to a change in pH which only varied between 7.4 to 7.6.

It was again attempted to find if the action of the drug was altered in the presence of organic matter. The above mentioned organisms were cultivated in the usual agar Formo-Cibazol medium to which were added separately: (a) blood, (b) serum, (c) dried sterile feces. The growth was similar to that in the medium without organic matter, perhaps more in the presence of blood and serum as those media have more nutritional value.

Animal experiments are being carried out and the results will be given soon.

SUMMARY AND CONCLUSIONS

1. The most common organism found in the stools together with *B. coli* in cases of infantile dyspepsia was streptococcus fecalis alone or associated with other organisms. *B. lactis aerogenes* came next in frequency. There was a notable absence of pseudomonas pyocyanea as well as complete absence of flagellates and protozoa.

2. Formo-Cibazol appears to be a valuable and effective drug in the treatment of infantile dyspepsia, toxic and simple, and those complicated by colitis.

3. The total number of cases treated was 100. 85 per cent were completely cured; 10 per cent showed improvement but no definite cure; 5 per cent were not affected by the drug.

4. The mortality rate among the whole series was nil.

5. The total number of toxic cases treated was too small (9 cases) to give an accurate picture of the effectiveness of the drug

in this particular condition. Of this group, 6 were completely cured, 2 showed improvement and 1 was a failure. The notable absence of deaths among this toxic group as compared with 29 per cent deaths in similar cases admitted to the hospital in 1946 appears very encouraging.

6. Cases of dyspepsia with colitis needed a longer time for cure than the usual cases.

7. No toxic manifestations related to the drug were observed. The drug can be safely given in doses up to 0.3 g. per kg. body weight per day without any untoward effect.

8. The most effective dose appears to be 0.2 g. per kg. body weight per day given in 4-6 hourly doses.

9. The authors are conducting investigations, clinical and bacteriological, on the comparative effect of this drug and other sulfa drugs.

We wish to thank Prof. A. K. Abdel Khalek bey, head of the pediatric department, for his kind help, guidance and facilitation on this work.

PENICILLIN AREOSOLS IN DISEASES OF LUNG. (*Pediatrics*, Naples, 57: 12, Jan.-Feb. 1949. Scarzella practiced penicillin areosol treatment in 52 patients with various types of non-tuberculous infection of the lung. The group included 47 infants and children and 5 young adults. The daily dose of penicillin used in the preparation of areosols varied from 25,000 to 50,000 units. The treatment was given every eight hours for ten to fifteen minutes for a series of ten or twelve treatments. Best results were obtained in acute abscess of the lung, in acute and chronic bronchitis and in bronchiectasis without pulmonary fibrosis. The improvement from the treatment was moderate in chronic abscess of the lung and in bronchiectasis with fibrosis. In all cases fever disappeared, the patient's general condition improved, the amount of sputum diminished and the sputum became odorless. Penicillin areosols proved to be of great therapeutic value in chronic rhinopharyngitis, especially when it was complicated with otitis. The treatment is also of value in adenoiditis and in inflammation of the lymphatic ring after tonsillectomy.—*Journal A.M.A.*

PERPLEXING FACTORS IN READING RETARDATION*

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General Aspects. Dyslexia (reading difficulty) has been described in the literature under various nomenclatures which have led to great confusion and misunderstanding of the problem itself. Dyslexia, alexia, aphasia and strephosymbolia are used synonymously to convey the idea that they are identical conditions. This is incorrect.

Dyslexia is a syndrome which is characterized by an inability to read properly even though the individual may have normal or superior intelligence. All abnormal factors which influence the person may modify his learning ability, depending upon how well the person can adjust to the annoyances caused by them. These factors are *functional*, observable, preventable and correctable in contradistinction to alexia.

The purpose of this paper is to present a discussion of some phase of learning. Also to call attention to some of the factors which have been evident in a series of 250 cases. As illustrative of the complexity of the factors which may be involved in causing dyslexia, a detailed history, diagnosis, recommendations and results are given pertaining to a case which is under active treatment.

A child's learning ability depends upon his integrated capacities to evaluate and coordinate things which he experiences in his milieu. Intellect is not a static quotient innately acquired but is rather a dynamic process where an evaluation is made of a situation based on past perceptual experiences and current motivations correlated with the immediate psychobiologic needs of the individual. In this series of interrelated influences neither the direction nor results of this dynamic process is necessarily determined according to any other individuals standards, per se. Nevertheless, learning processes are interwoven intimately with the training and example the child receives especially from the parents and other occupants of the home, and are carried on into the educational and other cultural media. The child, being so susceptible to the moods and cognizant of the peculiar temperaments of those with

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whom he associates, soon reflects their attitudes into his emotional pattern.

The dread of hereditary traits, especially of eccentricities of character and conduct, with accompanying overanxiety as shown by parents is found concurrent with many cases of dyslexia. Everything considered, studies in genetics indicate strongly that parents influence the behavior and attitudes less by genes than by their example, persuasion and parental care. And yet, there might be a tendency to inherit feeble-mindedness and, possibly, epilepsy, but the consensus of opinions of recent investigators¹ is that there are no reliable evidences that other abnormalities are entirely¹ dependent on organic or neurologic functions.

Much has been written on ways and means of determining the "reading readiness" status of a child with its profound effects on his future school achievements. Little has been said relative to physical immaturity, which should include especially the ocular and auditory responses to perceptual stimuli, and its relation to dyslexia. There should be no more reason to think that every child who has reached school age has matured physically and emotionally sufficiently to accept and react properly to the demands which the educational system imposes upon him, than to think he is ready to read at a certain age irrespective of his interest.

CASE RECORD NO. 292

Present Complaint. Patient is unable to keep up with his class in school, lacks stamina and has some incoordination. Patient is not interested in reading nor school. Mother believes his difficulty is due to hereditary traits.

General Physical. The patient, a boy 7 years 7 months old, height 49.5 inches and weight 55 pounds.

The family history is that the parents, each 39 years old, are living and well, excepting the mother has hay fever. The paternal grandfather is living and well, aged 63. Grandmother died at 56 from cardiac failure. The maternal grandfather committed suicide at 68 because of the prolonged illness of his wife who died at 58 from apoplexy. The grandfather had had several nervous breakdowns, first in college, second at age of 42 and again at 57. Allergy and asthma have been prevalent in both families.

The medical history of patient revealed that the mother gained

25 pounds during pregnancy. He weighed 7 pounds 12 ounces at birth and gained normally in height and weight from the beginning. There was no feeding problem, excepting he was breast fed for 2 months which had to be discontinued due to lack of sufficient milk. He was circumcised at birth. At six months of age he had severe bronchitis, measles at 1 year, chickenpox and bronchitis at 4 years, mumps at 6 years, hay fever and asthma for last 2 years. He walked at 14 months and talked at the age of two years. He did not have much strength, always tired, and appetite is poor. Immunized to smallpox, diphtheria, tetanus and pertussis.

Physical Examination. The patient's appearance was excellent, tall and erect. The upper teeth were slightly separated. The tonsils were hypertrophied. The chest, heart, lungs and abdomen were negative. The reflexes were normal. Temperature was 99.2° F, probably due to mydriatic in eyes, pulse 80, respiration 18, basal metabolic rate -6.3 per cent, Kahn test negative. Blood count: hemoglobin 91 per cent; R.B.C. 5,000,000; W.B.C. 6,000, polys, 59 per cent, lymphs, 37 per cent, monos 2, eosins 1, basophil 1. Urine: alkaline, specific gravity 1.012, albumen and sugar, neg. Microscopical: Urates +.

Tonic was advised. In 13 months patient gained 12 pounds and grew 2 inches in stature. Has normal amount of energy and is physically normal.

Vision. One year ago vision was approximately 20/30 in each eye. He complained of "specks" in front of his eyes. His attending ophthalmologist found remnants of the hyaloid membrane still attached. Examination now shows hyaloid remnants detached, but a fairly large floater is in the left posterior chamber. This suggests a slow physical maturation.

Visual acuity, RE 20/20, LE 20/30 + 3. Motility: Monocular and binocular, normal. Fusion: good. Stereopsis, passes A₆ card (Verhoeff). Fails all of A₁₁ card (Guibor). Neither eye was dominant when tested in stereoscope.

Ductions:	Distance	Diplopia	Recovery from Diplopia
	ad	16	0
	ab	6	2
	Near	ad	8-16
		ab	2
			5 to 4
			0 to 6 base out

It is particularly significant to note the difficulty which he experienced in recovering from the diplopia. The threshold of his response to visual stimuli was extremely limited. Park and Burri^{2, 3} have shown that duction weakness produces a significantly high correlation with reading disability giving about the same correlation as with exophoria. There is, then, a definite relationship between duction weakness and reading disability, the correlations being significant for the fusion amplitude as well as for the point of recovery. Poor duction ability, and particularly a retarded ability to recover fusion once diplopia appears, indicates also low ductional reserve and tends to cause undue fatigue. It was also shown that a larger percentage of children at the pre-reading age and in the first and second grades have more incompletely matured visual mechanisms than children in the next higher grades. The results and conclusions reached from the eye examination should be interpreted as being only a part of the complex problem. Even the correction of the eye abnormalities may not cause a recovery from the reading difficulties.

Phorias: Distance, 5° exophoria; near, 4° esophoria.

Homatropine refraction:

Accepted under cycloplegic RE + 2.00 = -50 ax 180 20/20

LE + 2.00 = -50 ax 180 20/30 + 4

It was felt that glasses were not indicated at that time but may be considered later. Duction training was recommended.

It was with great difficulty that he established and maintained fusion during the early periods of exercise. At times he was unable to overcome the diplopia until after considerable practice and then the images of the eyes would intermittently separate. After 25 treatments he could retain fusion, for near, to 40° B.O. and 6° B.I. with normal recovery ability from diplopia.

Park⁴, following an investigation, concluded that it would be erroneous to take the peripheral ocular mechanism habits as a standard and the visual acuity as the determinant of cerebral action or of perceptual processes. It is also inconclusive to take mental processes as the sole factor influencing the *modus operandi* of peripheral ocular performance. Since the roles are probably interchangeable, it would be difficult to determine which acts as the originator and which as the compensator. All available faculties

plus the desire to achieve the universal concept are probably integrated in the processes of learning.

When asked to read first grade material for photographing the eye movements he couldn't read, or rather didn't read, sufficiently well to make it possible to carry the procedure through. He was able to read first grade sufficiently well to make a recording of his voice.

Hearing. The examination of the ears showed that both ear drums were practically normal. The whispered voice could be heard at 4 feet right ear, 6 feet left ear. Conversation could be heard at 20 feet.

An audiogram was made with the result as depicted (Fig. 1).

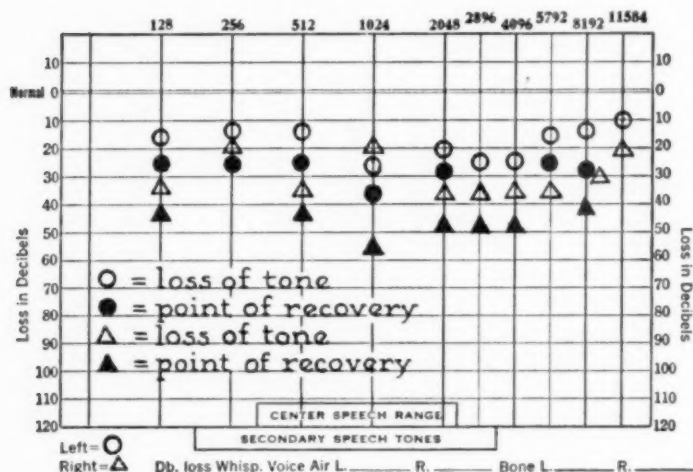


Fig. 1. The audiogram shows the variable between the ability to recognize auditory stimuli and the ability to maintain recognition once the hearing has been established.

It was unusual that as the volume was decreased to a point where he could not longer hear, it was noted that in most frequencies he was unable to recognize the tone again until the volume had been increased from 10 to 15 decibels above the point where the sound was lost. But when the hearing was reestablished the volume could again be reduced gradually to the lower position and

as before he continued to hear the sound until the interrupter was used again. It is evident that the threshold of his responses to auditory stimuli was greatly diminished. The ability to recognize auditory stimuli was lower than the ability to maintain recognition once the hearing was apparent.

*Psychiatric Appraisal.*⁵ In the interview with the parents the following was brought out:

"He is not keeping up with class in reading. He is deliberate. We feel he is physically under par with hay fever, asthma and colds. His brother is the opposite. He irritates patient demanding that he act faster. Patient is disinterested in reading.

"Patient has difficulty in expressing himself. His coordination is not good and he knows that. He has no appetite and no stamina. He is quite conscious of his inferiority. He tries to show off in front of little kids and girls. He meets older people well. He has a good sense of humor. He is the baby.

"He is now an eating problem 'not hungry' and an issue is made of it particularly by father.

"Illness of older brother has attracted attention and patient is concerned about illnesses. He is very sensitive and cries easily but doesn't bite fingernails nor stutter or stammer.

"He occasionally wets the bed at night. He was trained at age of 2 (early) and toilet training was strict. When patient wets bed, criticism is offered by older brother.

"Patient rebelled against going to school and objected to other children. He likes his teacher. He has no friends in school and no close friends near home. Patient is dumber than so and so.

"Patient has never had convulsions, deliriums, nightmares, faintings or any neuropathic traits.

The mother is a college graduate, brought up in a strict home environment and religion. She is a perfect housekeeper, although of a rather worrisome type individual. She is going through the menopause now with symptoms. She interprets the patient's problem as fixed because of herself and the hereditary "strains." There is a strong element of depression in the mother from her concern over her mental attitudes which she believes similar to her fathers.

The father of the patient is the product of an excellent home environment. Patient's grandfather was successful and provided

money anytime. Patient's father resents this and wants his children to have to work a little to know the value of money, etc. He is trying to relive his boyhood again in the life of his son. He is successful in business. His mother was ill a great deal and patient's father has critical attitude about illness and is insecure in that sphere. The parents tend to project a feeling of failure over patient by evasion.

Patient's older brother is an extrovert, good in school, athletics, and very popular. He is ashamed of younger brother. He professes he likes patient but balks considerably in discussing him. Patient's sister is also a good student and seems ashamed of brother's record. It appears that they rejected their younger brother due to his slow maturation, lack of coordination, failure in school and lack of interests in things which children would have normally at his chronological age.

Patient describes his father as "he likes me" indicating a high regard for father. He says: "Mother doesn't understand me." "She doesn't believe me." He believes she is irritable but states that she loves him. Patient persists in infantile regressive behavior. He yearns for affection and security. Immaturity was outstanding.

Mother states that from one to four years of age the patient was cared for by a "moron" presumably from a mental institution. This woman was of a motherly type and gave patient excessive attention and sympathy. Finally the older brother rebelled against this woman. The mother is concerned about the influence the governess had upon the patient's development.

Recommendations. Mother needs much reassurance to overcome her depression and concern about her similarity to her father's mental "strain." Patient's siblings should be persuaded to accept younger brother on equal terms. All those dealing with patient need to recognize that the slow maturation, both physical and emotional, has had a definite influence in causing the present difficulty.

Mother's response to counseling was observed and within a month she showed considerable improvement and was overcoming her depressed feeling. Considerable improvement was noted in poise and self confidence of the patient also, but every now and then he would "back slide" to infantile attitudes. Improvement

was slow. After 13 months of guidance the record shows: "Improvement maintained more consistently. Patient relaxed and discusses things calmly. Good rapport!"

Psychological Findings. During the original testing patient was cooperative and friendly. Reactions very slow. He has a habit of speaking to himself while working. At such times he repeats phrases. Example: "Gosh, that's simple, simple, simple," "Oh, no it isn't," "I don't think so." He writes some numbers backwards. He is easily influenced by anyone else's presence and becomes restless and hard to manage.

He has interests in music and drawing. He doesn't show interest in studies or active sports.

When he grows up he would like to be a cop. However, he would rather stay young so he wouldn't have to go to school.

He is unhappy at home, in school and with the children with whom he plays.

If the story he told is his own, as he said it was, this child has a vivid and creative imagination.

During the two lunches the patient had at the hospital he ate almost no food except sweets. He had two desserts and refused to drink his milk because it wasn't chocolate milk.

Initial Test Results. February 20, 1948.

Stanford-Binet intelligence test	I. Q.	102
Grace Arthur performance test	I. Q.	105

	Grade Placement	Percentile
Progressive Achievement Tests Form B. Primary.		
Reading vocabulary	1.8	10th
Reading comprehension	1.5	5th
Total reading	1.7	5th
Arithmetic reasoning	2.1	25th
Arithmetic fundamentals	2.2	25th
Total arithmetic	2.2	25th
Language	2.6	50th
Total test	2.1	20th
California Test of Personality.		
Self adjustment		5th
Social adjustment		5th
Total adjustment		5th

Highest Scores.	Percentile
Freedom from nervous symptoms	50th
Social standards	50th
Community relations	50th
Lowest Scores.	
Freedom from antisocial tendencies	0
Sense of personal worth	1
Sense of personal freedom	1
Feeling of belonging	1
School relations	1

Summary of Psychological Examination. Good vocabulary—average intelligence—babyish—cannot hold his own with his contemporaries, yet feels hurt because they boss him around. Doesn't want to grow up and do difficult things required in school, undisciplined; poor eating habits—dislike of studying. Socially maladjusted: "Everyone is snooty and nosey."

Four persistent inhibitory traits:

1. Likes to daydream.
2. When with other people they do most of talking.
3. Feels that parents and teachers expect him to behave better than necessary.
4. Happy for a while and then so sad he hardly knows what to do.

Retest—October 8, 1948. Patient worked very slowly.

Progressive Achievement Test. Primary A.

	Grade Placement	Percentile
Reading vocabulary	2.8	40
Reading comprehension	3.4	70
Total reading	3.1	60
Language	3.7	80

California Test of Personality. Primary B.

Self adjustment	50
Social adjustment	20
Total adjustment	30

Highest Scores.

Feeling of belonging	99
Freedom from nervous symptoms	99
School relations	90

Lowest Scores.		Percentile
Social standards		1
Freedom from antisocial tendencies	below	1
Self reliance		10
Sense of personal worth		10

Retest—June 17, 1949.

Progressive Achievement Test. Primary C.

	Grade Placement	Per cent
Reading vocabulary	3.9	50
Reading comprehension	3.9	50
Total reading	3.9	50
Spelling	4.0	

He has increased his speed to the point of taking all tests within the suggested time limit. Some tests were completed within about half the time allowed. He was far more mature than previously and could be left alone to work quietly and carefully.

California Test of Personality. Primary A.

	Percentile
Self adjustment	95
Social adjustment	75
Total adjustment	85
Self reliance	85
Sense of personal worth	40
Sense of personal freedom	99
Feeling of belonging	85
Freedom from withdrawing tendencies	95
Freedom from nervous symptoms	99
Social standards	65
Social skills	20
Freedom from antisocial tendencies	70
Family relations	75
School relations	95
Community relations	85

Educational Observation. Reads orally second grade level about 50 to 60 words per minute with excellent comprehension. Reading vocabulary is limited. Phonetic training is just beginning on a good basis. He is still an infant in his attitudes and fritters away his time.

Recommendations. With the foregoing information available the teaching program should be modified accordingly. Realizing the slowness with which patient works he should be taught the mechanics of beginning reading, at all times keeping in view the importance of increasing interest in reading, encouraging self reliance and improving his social and personal adjustment.

Speech. Speech is fairly mature. He is very pleasant, talks freely with good expression and wide inflection. Volume has a tendency to recede as though he were fatigued. The voice fades away at the end of sentences. He appears to be quiet and calm, showing good control of speech.

His excessive over-bite and uneven teeth affect his articulation to some extent, making some sounds indistinct. He likes to sing and he matches musical pitch extremely well.

He corrects himself when he makes a mistake in pronunciation. No defective sounds were detected that would reflect a poor speech history. On the contrary, his speech revealed a normal development in all phases excepting improper phonation with some nasalism which will require breathing exercises for correction.

Summary and Recommendations. (Based on staff conference). Patient is average in intelligence, retarded about one year in reading, one-half year in total achievement. Generally poor personal and social adjustment. Would like to be younger. Feels inferior to older brother and sister and compensates by showing off. Yearning for affection and security. Sensitive. Lacks self-reliance. Low sense of personal worth.

Father may be too demanding, older brother and sister have rejected patient. Parents tend to project feeling of failure over patient by evasion of the problem. Parents should be counseled concerning slow maturation, both in the physical and personality-social fields. Reassurance of mother that hereditary traits are not basically the cause of patient's difficulty.

Hearing is variable which must be considered so that patient may hear and understand instructions given by parents and teachers. Patient also lacks stamina and coordination which should be treated. Orthoptic training should be instituted to establish better ocular coordination.

The critical aspects of the information must be brought home to the child, the parents, the teacher and any other persons in-

volved.⁶ The teaching program should be guided accordingly. Specifically, in this case the mechanics of beginning reading must be taught, interest in reading increased, self-reliance is to be encouraged and personal and social maladjustment corrected.

Progress. Although the above program was instituted there was no magic transformation and adaptation made by the child and parents. The improvements were gradual and within approximately a year there were satisfactory adjustments noted in all phases of treatment.

The progress of patient's improvement was notably enhanced by the intelligent cooperation of parents and teachers, especially by the satisfactory response of the mother to counseling.

The author wishes to acknowledge the unprecedented work which is being done by the staff of the Dyslexia Memorial Institute: Dr. James H. Appleman, Prof. Alfred Schmieding, Dr. Frank M. Lorimer, Eva Julstrom, Dorothy Taraba, Beverly Cox, Ann Motta and members of the Dyslexia Guild. Also Col. Horace Wulf is to be commended for his stimulative influence in the advancement of the work.

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INCREASED POLIOMYELITIS MORBIDITY IN OLDER AGE GROUPS. (Nordisk Medicin, Stockholm, 41: 361, Feb. 25, 1949). Wernstedt says that, with increased urbanization in country districts in Sweden in recent years, improvements in road systems and means of travel and more intensive movement to the cities, persons of low immunity from rural districts have been brought into livelier contact with urban populations and have been exposed to greater risk of poliomyelitis infection. This applies particularly to older children and adults, who are mainly the ones to travel and to settle in cities and densely populated areas for purposes of education or employment in industry or trade. The result has been an increase in the incidence of poliomyelitis in these age groups.—*Journal A.M.A.*

PEDIATRICS HALF A CENTURY AGO

From time to time the Archives, which was the first Children's Journal in the English language, will reprint contributions by the pioneers of the specialty over fifty years ago. It is believed that our readers will be interested in reviewing such early pediatric thought.

A CLINICAL STUDY OF SIXTY-TWO CASES OF INTESTINAL INFECTION BY THE BACILLUS DYSENTERIAE (SHIGA) IN INFANTS*

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It is necessary to emphasize at the outset that this study is entirely clinical. The bacillus dysenteriae, first proved to be the cause of Japanese dysentery by Shiga, and later to be responsible for the disease in Manila, the United States, Germany and other countries, is now universally regarded as one of the etiological factors in adult dysentery.

Duval and Bassett, in 1902, working under Flexner's direction, isolated the bacillus of Shiga from the stools of infants suffering from summer diarrhea. Their results have been confirmed by many other investigators, and infection with the bacillus dysenteriae is now believed to be the rule in a large proportion of all forms of the diarrheas of infancy, both in the winter and in the summer.

It is not our intention to discuss the cause of diarrhea in infants, or the bacteriology or pathology of this condition. This clinical study was a part of the investigation carried on during the past summer by the Rockefeller Institute for Medical Research and was intended to deal with the symptoms observed in those cases in whose stools the bacillus dysenteriae was found.

The cases that make up the material for this study were all observed by the writers at the Vanderbilt Clinic during the months of July, August and September 1903. The patients were brought to the dispensary, which is an out-patient service, and the milder

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cases were seen only every alternate day. The severe cases were, in addition, visited and treated at their homes on the days that they did not come to the clinic by Drs. Peter Irving and Frank Erdwurm, whose efficient co-operation made full reports possible. To insure uniform records use was made of printed blanks upon which could be recorded the history, physical examinations and daily observations of each case.

When a child was brought with a history of diarrhea, effort was made at the time of the first visit to obtain a fresh stool for immediate bacteriological examination. By using the thermometer by rectum or inserting a suppository it was possible in most cases to obtain a stool. The stool was passed into a sterile piece of unbleached cotton, then taken at once to the bacteriologists, Drs. Duval and Schorer, working in the same building. In forty-eight hours a bacteriological report on the presence or absence of the dysentery bacillus could be obtained.

At first only those cases were examined bacteriologically that gave the history or presented symptoms of a moderately severe diarrhea; but later, on account of the numerous positive findings, all cases of mild diarrhea and intestinal indigestion were also examined. This makes our report of far greater interest, our cases being successive ones and no selection at all having been attempted after the first 4 cases, while other cases that have been published up to this time have been those selected for their severity, or for some reason regarded as suitable and likely to contain the bacillus of dysentery. One small series examined *seriatim* has been reported and will be commented upon later.

Some patients were seen but once; in others, though seen several times, the result of the disease was unknown. Undoubtedly some of these cases recovered so that they were not brought back to the clinic; others refused to return after the first injection of the serum.

As routine measures, cow's milk was immediately discontinued and not resumed for several days; in breast-fed infants the nursing was forbidden for a time. Barley water, rice water or broth was substituted for the milk. Free catharsis was obtained by means of calomel and castor oil. Other drugs were rarely used.

There were in all 62 cases of infection with the bacillus dysenteriae (Shiga); of these 2 were observed during June, 33 in July,

18 in August and 9 in September. The investigation was begun late in June and ended September 15, so that only during July and August were observations carried throughout the whole of the month; hence, the small number of cases reported in the first and last months, June and September, has little significance.

Age. Eight of the patients were under three months; 14 were between three and six months; 15 were between six and nine months; 9 were between nine and twelve months, and 15 were over one year; of 1 the age was not stated.

Of the 8 patients under three months of age, 5 were only slightly sick; 1 moderately, and 2 severely sick.

Of the 14 patients between three and six months, 7 were mild infections; 4 moderately severe; 2 severe, and 1 patient was only seen once.

Of the 15 between six and nine months, 3 were mild cases; 9 were moderately severe, and 3 severe.

Of the 9 between nine and twelve months, 5 were moderately severe and 4 severe cases.

Of the 15 over twelve months, 1 was a mild case; 11 were moderate cases and 3 severe cases.

From an analysis of these cases it would appear that the number of moderately severe and severe cases increases proportionately with the increase in age. This is explained, however, by the fact that a majority of the mild cases under six months of age in this series were breast-fed.

Previous Illness. An attempt was made to learn if the patient had previously suffered from diarrhea and by reason of this was more susceptible to infection with the bacillus dysenteriae. The statements were so unreliable that no conclusions could be drawn. No other predisposing cause in the way of disease could be discovered.

Character of Food. Of the 14 severe cases, 1 was breast-fed; 5 were given condensed milk; 2 Straus' sterilized milk; 2 grocer's milk; 3 fairly clean bottled milk, and 1 case not stated.

There were 14 children entirely breast-fed, 2 children were partly breast-fed; 11 children had been fed on grocery milk; 7 on bottled milk of fair quality; 8 were fed partly or wholly on sweetened or unsweetened condensed milk; 5 on proprietary foods without milk; 2 on Straus' sterilized milk; 2 on home sterilized

milk; 1 on peptonized milk; 4 on general diet and no statement in regard to 7 (counted twice 1).

LENGTH OF SYMPTOMS BEFORE OBSERVATION

Symptoms had existed for	1 day	in	5 cases
" " " "	2 days	"	7 "
" " " "	3 "	"	8 "
" " " "	4 "	"	5 "
" " " "	5-10 "	"	17 "
" " " "	11-14 "	"	7 "
" " " "	1-3 months	"	10 "
" " " "	No statement	"	3 "

Forty of the cases had given symptoms for one week or less showing that they were brought while they were still acutely ill.

LENGTH OF TIME UNDER OBSERVATION

1-3 days	28
4-7 "	12
8-14 "	10
2 weeks and over	8
No record (seen only once)	4

Condition at the Beginning of Attack. Of the 62 cases whose condition at the beginning of the attack was noted, 31 were well nourished; 2 fairly nourished; 11 poorly nourished; 13 were emaciated, weak and in wretched condition; 2 were in collapse and practically moribund on the first examination.

It is most interesting and instructive to notice in this connection that of the 31 children who were well nourished, 14 had a very mild form of disease, 12 were moderately ill and only 5 severely ill; of the 2 fairly nourished, 1 was very slightly and the other severely ill; of the 11 poorly nourished, 7 were moderately, 3 severely and only 1 slightly ill. Of the 13 emaciated, 3 were severely ill, 10 moderately, and not one had the disease in a mild form. From this it would seem that the most important factor in determining the character and severity of the disease is the previous condition of the child.

Of the cases observed by us 16 were very mild, 31 were moderately severe and 14 were severe; 1 case was lost sight of and so was unclassified. We characterized as mild those cases that had more frequent passages than normal, but not more than 10 a day, with a temperature of less than 100.5° F. These stools contained undigested food, usually mucus but no blood (such cases were not really sick). Those cases were classified as moderate that had a temperature over 100.5° F. or had frequent passages contain-

ing mucus and sometimes, a slight amount of blood. These cases were really sick and showed constitutional symptoms. The severe cases comprised those having marked constitutional symptoms and great depression with frequent mucous stools, often with much blood, and, while the temperature of these cases was usually considerably elevated, many of them and some of the most severe ran an almost afebrile course.

Thirty-four cases did not show a temperature of over $100\frac{1}{2}^{\circ}\text{F}$. and thus more than one-half of those seen by us were practically without fever. Vomiting occurred in 19 cases, usually at the beginning of the attack.

The	number	of	stools	in	24	hours	was	from	2	to	5	in	5	cases
"	"	"	"	"	"	"	"	"	5	"	10	"	35	"
"	"	"	"	"	"	"	"	"	over		10	"	20	"

In 2 cases not stated.

Two cases had stools without any mucus; mucus was present in all other cases in varying quantity from a minute amount to practically the whole stool. Blood was present in 17 cases; the quantity of blood varied from a few streaks to enough to color all the mucus; no clots of blood were ever observed.

THE FOLLOWING CASES ARE CITED AS REPRESENTING TYPES OF THE
DIFFERENT DEGREES OF SEVERITY

Mild. (Breast-fed infant). P. B., five months old, nursed entirely, every three hours. Had never been ill and his condition at the beginning of the attack was good. His illness began two days previously with three green mucous stools per day. No fever, no vomiting, no blood in the stools. Physical examination was negative. He was rather restless, but otherwise seemed perfectly well and had a temperature of only 100°F . The stool seen at the dispensary was green, moderately large, semi-liquid with mucus, no blood. Breast-feeding was ordered discontinued and barley water feedings substituted; small doses of calomel were given. The following day the condition was the same, character of stools unchanged and the same number. The following day the stools were two in number, yellow, fecal, with only a little mucus and everything seemed so satisfactory that breast-feeding was resumed with an absolutely uninterrupted convalescence.

Such a case would formerly have been considered a very mild

case of intestinal indigestion; but the bacteriological examination showed the presence of the acid producing* type of dysentery organism.

Mild. (Bottle-fed infant). W. P., six months old, in good general condition. Never had the breast, bottle-fed from birth; at present being fed a mixture of malted milk 3 teaspoonfuls, and water 1 pint; of this 5 ounces were given every two or three hours. Illness began three days previously with loose, mucous stools, averaging ten a day, no blood, no vomiting. Temperature $100\frac{1}{2}^{\circ}\text{F}$. Did not seem ill. Acid type of organism cultivated from stools. Patient was under observation six days. Child was given calomel and shortly after a dilute milk modification. After treatment was begun the stools were never more than four a day, were yellow and fecal but had mucus and a few curds. These disappeared and the child was discharged entirely well.

Moderately Severe. R. W., five months old. Was nursed for four months, afterwards fed on three parts Straus' milk and two parts barley water, taking only 15 ounces of the mixture in twenty-four hours. The baby was in good general condition when taken sick two weeks before being brought to clinic; the onset had been with vomiting and fever; there had been marked loss of flesh and baby was markedly prostrated when first seen. The stools were five to seven a day, large, green with considerable mucus and some blood. Temperature 100° to 101°F . The acid type of organism was cultivated from the stools. The patient was under observation nine days; was given calomel and the milk was stopped two days; then a weak milk modification given. The stools became less frequent, their character improved, and on the last day seen were only two in number, yellow and with some mucus. The temperature was normal.

Severe. M. K., seven months. Had been under observation for six months, at the beginning of which time he weighed 4 pounds 15 ounces. Had been fed on various milk modifications and had gained very well; at the time of the attack was of fair weight and in good general condition. For about ten days had suffered from symptoms of intestinal indigestion. The stools were yellow, frothy and large, and there were ten to twelve in twenty-four

*The acid producing type, i. e., the one that splits mannite with the formation of acid, is also known as the "Flexner-Manila" or "Harris" organism. The other type that does not split mannite is known as the true Shiga or alkaline organism.

hours. There was some tenesmus and mucus in great amount; no blood. Free catharsis and the substitution of barley water for the milk had no effect; stools were still frequent and yellow and once contained a little blood. The true Shiga type of organism was found by culture from the stools. The temperature was always low never going above 100.4° F. Imperial Granum was no better borne than the barley. The child constantly failed and the stools were still frequent, as many as sixteen in a day; bismuth only colored the stools. In a week the child was in desperate straits, eyes sunken, fontanel depressed and pulse imperceptible. He was given 20 cc. of Shiga serum in the buttocks on two successive days. Stimulation by whiskey, strychnin and hot baths was resorted to. Child was also given a milk and water mixture, 1-6. Very decided improvement was seen almost immediately, the number of stools diminishing in one day from sixteen to four; this was three days after the first injection of serum. From this time convalescence was rapid and three months after the attack he is a fat, well-nourished child, taking milk well and digesting it.

Fatal Cases. To our knowledge there were 4 fatal cases. It is possible that some others of the cases observed died, but not while under observation, nor were any in a moribund condition when last seen.

(1) J. C., ten months old, in poor condition and emaciated; living in a tenement in fair surroundings, but badly cared for; was taken with diarrhea while being fed on a weak barley-water and milk mixture. No history of previous illness, and he had been bottle-fed for eight months. The onset was without vomiting, but with moderate fever and with frequent mucous stools, eight a day, no blood. When first seen on the second day of the attack the baby was markedly anemic, fontanel depressed; heart very feeble; circulation poor; extremities cold; no distention. Lungs negative. Very restless. Milk stopped and barley water given and white of egg with whiskey. Temperature 101.8° F. Stools were small and green mucopurulent with streaks of blood. Following day child was extremely prostrated, temperature 101° F.; edema of face and lower extremities; respiration shallow, radial pulse imperceptible. Death thirty-six hours later.

The true Shiga type of dysentery organism was separated from the stools on the first day of observation.

(2) G. H., ten months old, in fair condition, living in a filthy tenement, with little sunlight and poor care; was taken sick while being fed a condensed milk mixture. He had been nursed until three months old. The onset was acute by vomiting, high fever, $103\frac{1}{2}^{\circ}$ F., and diarrhea; stools were six to seven a day and contained mucus, no blood. When first seen, four days after the beginning of the attack the child was somewhat emaciated; fontanel not sunken; temperature 103° F.; very restless and with some tenesmus. Put on barley water and following catharsis was given a bismuth mixture. On the seventh day of the attack was given 10 cc. of Harris serum, and these injections were repeated on the eighth and ninth days. By the fourteenth day the general condition was somewhat improved, the temperature having fallen to 100° F., pulse still rapid. The diarrhea had much diminished so that there were only two or three yellow fecal stools a day. A weak milk mixture was given with no bad effect upon the intestinal condition, but the child gradually failed, and in spite of stimulation by whiskey and strychnia the extremities became cold; edema came on and the heart gradually gave out four weeks after the beginning of his attack. The mother was densely ignorant and failed to carry out directions, especially in regard to feeding; moreover, she refused to have the child admitted to a hospital. The Harris, or acid, type of organism was separated from the stools on the first day of observation.

(3) A. K., three months old, fairly nourished, living in a clean tenement but with little care. Had been nursed entirely for one month. Was taken sick while being fed on Straus' sterilized milk. The onset was sudden with fever and diarrhea, no vomiting. Stools were mucous but contained no blood, twelve a day; there was much tenesmus. First seen seven days after the beginning of the attack; the child was anemic and in collapse. Fontanel depressed. Heart normal; lungs—fine râles at both bases behind. Child was admitted to the Babies' Hospital four days later and was given, along with other treatment, 10 cc. of Harris serum. Refused food and later regurgitated after feeding. Temperature remained between 103° and 105° F., and the child died forty-eight hours later. The stools had diminished to four a day.

The Harris, or acid, type of organism was separated from the stools on the first day of observation.

(4) M. McK., seven weeks old, a poorly nourished child, living in a dirty tenement with very poor care. Was taken sick with diarrhea while being fed on condensed milk and Eskay's food. The baby had been nursed for three weeks, but nursing had then been stopped because the mother developed an abscess of the breast. The onset was acute with vomiting, but no fever. The stools were five or seven in twenty-four hours; green, mucous and offensive, but contained no blood. When first seen, seven days after the beginning of the attack, the child was much prostrated and anemic, temperature 100° F., and pulse 100 and weak, cold extremities and restless. After catharsis, was fed on barley water, stools remained the same; refused food and in spite of stimulation and 10 cc. of Harris serum the baby died four days later after having been in collapse for twenty-four hours.

Of the fatal cases all were under one year of age; all were artificially fed and were in very poor condition when first observed; and, also, they had only the poorest care and attention.

Breast-fed Cases. There were fourteen infants exclusively breast-fed that suffered from infection with the bacillus dysenteriae.

(1) L. P., six weeks old, good general condition. Stools four to eight a day, watery, with slight amount of mucus, no blood. Five days after the beginning of the attack cathartics given and substitution of barley water for nursing; in twenty-four hours stools became fecal and the mucus disappeared. Never any vomiting or fever. The "acid" type of organism was isolated.

(2) F. A., six weeks old, good general condition. Diarrhea and vomiting. Stools soft and yellow with some mucus, seven in twenty-four hours. Seen only once. The acid type of organism was isolated.

(3) P. B., five months old, good general condition. Onset without vomiting or fever. Three green mucous stools daily. After calomel and withholding the breast the stools became yellow and fecal, two a day, and on the third day of treatment and the fifth of the disease the child was discharged perfectly well. The acid type of organism was separated from the stools.

(4) C. F., two and one-half months old, in good condition at the beginning of the attack. Onset with high fever, very frequent green, fluid stools with curds and much mucus, no blood, fifteen a

day. Temperature 104° F. The acid type of organism found. Referred to hospital but did not go. Seen only once.

(5) D. M., four months old, in good general condition; three to five green and mucous stools, no blood; diarrhea began two days before coming under observation. No vomiting or fever; child not at all sick but the stools contained a little undigested milk and were green for four or five days. On the fourth and fifth days of treatment 10 cc. of Shiga serum injected. Two days after this the stools became yellow and fecal and the breast-feeding, temporarily withheld, was resumed. The true Shiga bacilli were found in the stool.

(6) N. H., eight weeks old, good general condition. Diarrhea with six to eight fluid, mucous stools had begun two days before coming under observation. No fever or vomiting. Castor oil and barley water were followed by prompt recovery in two days. The acid type of organism was found.

(7) W. R., eight weeks old, in good general condition. Diarrhea with fluid, mucous stools began without fever or vomiting two days before coming under observation. The exhibition of castor oil and barley water was followed by recovery on the fifth day of the attack. True Shiga organisms found in stools.

(8) C. J., three months old, in good general condition. Diarrhea began without fever or vomiting, three days before coming under observation; stools eight to ten, fluid and mucus, no blood. Castor oil and barley water effected a rapid cure in two days. The acid type of organism was isolated.

(9) L. G., thirteen months old, fair general condition. Onset acute with fever one week before coming under observation, no vomiting. Stools had been six to eight a day, fluid and mucous, no blood, and child had lost much weight. Temperature 101.8° F. Calomel and barley water given. Case seen only once. The acid type of organism was isolated.

(10) J. D., one year old, good general condition. The attack of diarrhea began with vomiting and fever; stools four to nine in twenty-four hours, loose, mucous, with slight amount of blood. When seen one week after beginning of attack, temperature was 101° F. Child was somewhat prostrated and emaciated. Tenesmus and prolapse of rectum. Under treatment by castor oil and bismuth, the child improved rapidly.

(11) L. A., ten weeks old, excellent general condition, had been sick for one week with diarrhea, five to six yellow, slightly mucous, stools daily; no blood, no fever, no vomiting. Calomel and barley water effected a cure in two days, the stools being normal in twenty-four hours. The true Shiga and the acid type of organisms were both present.

(12) R. A., five months old, good general condition. Diarrhea, six to eight fluid mucous stools without blood. No vomiting or fever. Came under observation on the third day of the attack. The giving of calomel, barley water and bismuth mixture for two days, followed by a gradual resumption of nursing, effected a cure on the fifth day. The Shiga type of organism was present.

(13) K. M., eight months old, good general condition. Diarrhea without vomiting or fever. Stools fluid, mucous, no blood, eight to ten in twenty-four hours. Child sick three days before coming under observation; then calomel, bismuth mixture and barley water brought about a rapid recovery.

(14) G. S., seven months old, excellent condition. Diarrhea with eight or nine fluid, very mucous, stools without blood. On the eighth day of illness the child was brought to the clinic. Calomel and bismuth with barley water were followed by the reduction of stools to three in twenty-four hours and by the change in character to normal.

Of the breast-fed cases, whose records are complete, none died, all ran a very mild course, the average being three to four days after coming under observation. Save for the bacteriological findings there was nothing to indicate that their sickness had any relation to true dysentery. These cases, moreover, with hardly an exception, were well-nourished children. Blood was observed in but one case.

Type of Infection. There were 42 cases in which the acid type of organism was found; 15 were infected with the alkaline or true Shiga type; in 5 cases both types of the organism were found. Of the 42 "acid" infections, 9 were classified as mild cases, 21 as moderately severe, 10 as severe, 2 not being classified. Of the 15 true Shiga infections, 5 were mild, 6 moderately severe and 4 severe. Of the 5 mixed infections 1 was mild and 4 moderately severe.

From this it will be seen that in the acid type of infection, as well as in the true Shiga type, the moderately severe cases were

most numerous, and there seemed to be no difference in the severity of the disease attributable to the type of infection.

We did not use at all, for diagnosis, the agglutination reaction of the blood of the patients. It has been proven in children as well as in adults that this reaction, while often present, is uncertain and unsatisfactory for the reason that it appears late, never before the end of the first week, and often not before the second or third week, and may disappear early in the prolonged cases; so that we can make our diagnosis by an examination of the stools much more easily and more satisfactorily than by the blood.

Treatment. As outlined above the majority of the cases were treated by the usual methods both as to their management and diet. Milk, whether breast milk or cow's milk, was immediately discontinued; barley water, broth or some proprietary food, or rarely, albumen water being given in its place; it was only resumed when the acute symptoms had subsided. Catharsis by calomel and castor oil was the invariable rule. When there was great irritability of the intestines with tenesmus and numerous small stools, rectal irrigations, without or with paregoric, were employed. For temperature that gave rise to nervous symptoms, irrigations and alcohol sponging were resorted to. A bismuth mixture was used in a few cases.

Serum Therapy. There were in all 10 cases in which the serum was injected; 4 were infections with the acid type of organism and were given "Harris" serum; 6 were infections with true *Shiga* organism and were given "Shiga" serum. Only the severe cases were subjected to this treatment, as it was found that in dispensary practice the mothers would not return with the patients after injection unless the disease was apparently serious.

Of the injected series, Cases 1 and 2 were given 10 cc. of Harris serum and did not return after the injections. Case 3, after receiving 20 cc. of Harris serum, showed decided improvement; after the injection of 10 cc. additional this was still more marked, but the child died of marasmus three weeks later without any return of the diarrhea. Case 4 was already improving on irrigations before the injection of the serum, so that no conclusions can be drawn. Case 5 showed decided reduction in the number of stools and improvement in their character after the injection of 10 cc. of Shiga serum on two successive days. Case 6 received

20 cc. Shiga serum, but the improvement in the child's condition could not be attributed to the injection.

Case 7 received 10 cc. of Harris serum when moribund.

Case 8 (the severe case quoted above) improved very markedly after two injections of 20 cc. each of Shiga serum, but only after an interval of three days, during which time there were additional stimulation and change of diet, so that the effect of the serum is doubtful.

Cases 9 and 10 were apparently uninfluenced by the injection of Shiga serum.

A rash similar to that seen after the employment of diphtheria antitoxin was observed in only one patient, notwithstanding the fact that the quantity of serum injected was very much greater than that ordinarily used in diphtheria.

The difficulties of administering serum in outdoor practice must be emphasized. The quantity of serum of the present strength necessarily employed is large and must often be injected into an emaciated child, producing a swelling of a size alarming to the laity. Objection also arises on account of the pain of the injection.

From an analysis of these 62 cases observed by us, it seems that certain points are worthy of special note.

(1) The unexpectedly great prevalence of the dysentery organism in cases of diarrhea in infants, at least during the summer months. Thus out of 64 consecutive cases examined in the Vanderbilt Clinic, 62 were positive.

As has been mentioned before, this is the first large series in which the cases have been examined seriatim, and the result is certainly striking. It is all the more so when we consider that these were cases in dispensary practice, where with the severe, the very mildest cases may be seen. Duval and Bassett examined 25 successive cases of infantile diarrhea and found the organism in 19; but it should be stated that the patients were observed in a sanatorium at a distance from Baltimore where, of course, only the more severe cases were sent from the dispensaries, while ours were all ambulant patients and their stools were examined whenever there was the slightest sign of any digestive disturbance. Our cases were also seen very early whereas, in hospitals, the cases are rarely seen until after their initial symptoms have passed.

(2) All types of diarrheal disease, as characterized by their clinical symptoms, are to be found among these cases. Some were examples of severe and some of mild ileocolitis; others could only be classed as the mildest form of intestinal indigestion. The course of the disease, while usually short, was prolonged in 8 cases.

(3) As compared with cases of summer diarrhea of other years those in this series were in general much milder; and possibly this was due to two factors: (a) The cool summer. (b) The increasing knowledge among the tenement population of the care of infants and their food.

(4) The striking number of breast-fed infants, 14 in 62 cases, more than 20 per cent. of all.

In the series of Duval and Bassett previously mentioned, there were 4 breast-fed cases and a few others in addition have been reported. The greater number in our series is accounted for by the fact that all stools from patients with diarrhea were examined. As will be remembered, of our 14 breast-fed children not one was severely or even moderately ill, and only one had blood in the stools. Such cases would therefore not be sent to hospitals, and so usually their stools would not be available for examination.

(5) The serum treatment was not given in a sufficient number of cases to warrant any conclusions. While of apparent benefit in some cases, there were others in which no effect whatever was noticed. It may be that larger dosage is necessary; but, if so, the serum must be more concentrated than at present.

GASTRIC MUCOUS MEMBRANE IN TREATMENT OF PELLAGRA. (Archivos de Medicina Infantil, Havana, 18: 1, Jan.-Feb.-March 1949). The authors followed the progress of 5 patients with pellagra treated with dry gastric mucous membrane, performing weekly biopsies of the liver. There was no other lipotropic medication. The initial fatty infiltration of the liver subsided and there was an improvement in the clinical symptoms. The authors stress effectiveness of the lipotropic activity of dry gastric mucous membrane. Biopsies of the liver were performed in more than 200 cases. They constitute an indispensable feature in the diagnosis and prognosis of diseases of the liver, and they are absolutely innocuous. —*Journal A.M.A.*

CLINICAL-PATHOLOGICAL CONFERENCE

WILLARD PARKER HOSPITAL, NEW YORK

Meeting held July 19, 1949

DR. JACOB ROSENBLUTH, presiding.

BULBAR POLIOMYELITIS

DR. PARR presented Case No. 1804, a 7-year-old white male child. This child was admitted to this hospital on June 21, 1949, with a history of onset of symptoms on June 11, 1949 of headache, cold and fever which continued to run a low grade character for 9 days. The day before admission the child had trouble in swallowing, regurgitated fluids through his nose, vomited after feedings, had fever and complained also of headaches. The past history was noncontributory.

On admission the child had a fever of 100° F., respiratory rate of 40, pulse of 104, and a blood pressure of 100/80. His face was flushed; his skin clear; sat up without difficulty, but complained of pain in his neck. There was slight spasm of neck, back and hamstrings. Brudzinski's and Kernig's signs were slightly positive. All deep reflexes were present as were the abdominals, but the cremasterics were absent. There was weakness of both sternomastoids and rhomboids, but no other change in muscle power. The soft palate moved, but was weak bilaterally. The diaphragm moved normally. No other positive findings were elicited.

On admission the spinal fluid was clear, Pandy—negative, sugar—normal, smear—negative, but 40 cells were present, all mononuclears. A complete blood count on June 22, 1949 revealed 11,600 W.B.C., 6,000,000 R.B.C., 14.5 grams of hemoglobulin, and a differential of 69 polys, 30 lymphs and 1 eosinophile. Urinalysis revealed no abnormalities and cultures of the nose and throat did not reveal diphtheria organisms. The course in the hospital was characterized by a continued rise in temperature to 108° F. at the time of death, 4 days later. His gag reflex was present weakly and he could swallow fluids only to have them regurgitated through his nose. The child received intravenous fluids daily. He developed a left facial weakness and bilateral

biceps weakness. He became more lethargic, had a rise of blood pressure to 120/80, had to have suction started for accumulation of mouth secretions, and an irregular breathing pattern by the afternoon of June 23, 1949. He was placed in an oxygen tent, and his pulse and respiratory rate increased with his temperature. His response to stimuli became progressively worse and finally he became comatose. He continued to have no involvement of the intercostals or the diaphragm. By the morning of June 25, 1949, the child was doing very poorly, blood pressure had dropped to 60/0, skin was mottled, he was regurgitating coffee-ground vomitus, secretions had become very thick, chest excursion had become very small, little response was resulting from the use of respiratory stimuli, and the temperature and pulse were rising. A tracheotomy was done, following which the child was placed in a respirator, but death ensued shortly thereafter.

Dr. Rosenbluth asked how soon after admission was the tracheotomy performed.

Dr. PARR replied that when the temperature had risen to 105° F. and, although he still had air in the lungs, the tracheotomy was performed.

Dr. PARR also stated that there was nothing extraordinary to be seen in the chest x-rays.

Autopsy Findings. Gross findings were described by Dr. Katz. The body was that of a well-developed and well-nourished white boy. The hair was abundant; pupils in mid-dilatation; the oral cavity normal; ears and nose clear. There was a marked autolysis of the stomach with brownish fluid free in the peritoneal cavity but the peritoneum was not inflamed. A number of enlarged mesenteric lymph nodes were present. The left lung was collapsed and the diaphragm somewhat elevated. The left lung revealed many areas of patchy atelectasis and was not crepitant to the touch. The right lung was pale and crepitant; on section, it appeared bright scarlet. There was no evidence of obstruction of bronchial passages and on section some slightly blood-tinged mucus was present in the bronchial lumen. In the pericardial cavity there was no free fluid. The cardiac musculature appeared firm and the valves intact. A few subendocardial petechial hemorrhages were present. The liver appeared somewhat congested. Gall bladder contained about an ounce of bile. The spleen was

fairly firm. The pulp scraped very slightly. The follicles were not prominent. The adrenal glands showed marked separation of the layers. The cortical tissue of the kidneys appeared somewhat congested. The bladder contained about 4 ounces of clear urine. The intestinal canal was normal. The brain appeared very congested and edematous. There was no significant gross pathology to be found on sectioning the cerebrum, but a small 2 square mm. hemorrhage was present on one side in the medulla. The spinal cord appeared diffusely congested and edematous and showed marked hemorrhages in anterior and posterior horns of the gray matter in the cervical region, upper two-thirds of the thoracic cord and the lumbar cord. No hemorrhages were seen grossly in the lower thoracic or sacral cord.

Microscopic Sections were presented by Dr. Dolgopol. The sections of the cervical cord showed considerable loss of cells and severe damage of many remaining cells in the anterior horns. Glial nodules were numerous. Perivascular cuffing was present with some polymorphonuclears among the cells of the cuffs. Small hemorrhages were shown in the perivascular spaces and in the parenchyma of the gray matter of the anterior and posterior horns and occasional cuffs were present in posterior horns and in the white matter. Cellular damage was not as advanced in the anterior horns of the thoracic cord. The hemorrhages were more severe in upper than in lower thoracic portion. On one side of the lumbar cord, a number of cells were well preserved. On the opposite side, there were hardly any cells to be seen. In some sections, the meninges showed slight lymphocytic infiltration. Small hemorrhages, that could not be seen grossly, and perivascular cuffing were present in the sacral cord but most of the cells were preserved.

In the upper medulla slight cellular damage, in the cells of the nuclei, in the floor of the fourth ventricle, was present. Scattered perivascular cuffing was noted in all parts of the medulla. A small area of nerve tissue was markedly rarefied, was devoid of ganglion cells and was densely infiltrated with microglial phagocytes. This was the area of gross hemorrhages, corresponding to the nucleus ambiguus and a part of the reticular nucleus on that side.

The cells of the midbrain were not particularly damaged but

there were hemorrhages in the ganglion region of the nucleus of the third nerve. A large glial nodule was present in one place in the pontine nuclei. Occasional perivascular cuffs were present in the basal ganglia. There was nothing of significance in the cerebral cortex except for some toxic degeneration of the cells.

In the left lung there was much mucus produced by the bronchial glands. The alveolar walls were thick and contained many mononuclear cells. Whether this is due to atelectasis or possible pneumonia, caused by the virus of poliomyelitis, is difficult to say. Some pathologists think that poliomyelitis may produce a virus pneumonia. A few bronchi were plugged with mucus. The right lung was essentially similar but with better aeration. One section of this lung contained very little air. Edema was present in some parts. The tissue was markedly congested and groups of alveoli were filled with fibrin and some polymorphonuclears. Some bronchi were plugged with mucus and leukocytes.

The question came up of the advisability of tracheotomy.

It is still an open question, whether tracheotomy should be used more widely in cases of poliomyelitis.

DR. ROSENBLUTH. Any comments?

DR. DOLGOPOL. Could electrocardiograph studies be done on these cases? It would be most important in view of occurrence of focal myocarditis in poliomyelitis.

DR. GOLDSTEIN. I think it should be done, providing the patient's condition permits it.

DR. GOLDSTEIN. From the autopsy findings, one could see that, perhaps, early tracheotomy might have been in order.

DR. MAURICE LENARSKY, the Director of the Poliomyelitis Service, discussed briefly some clinical features of bulbar poliomyelitis and the treatment of bulbar poliomyelitis with special reference to the use of tracheotomy. He appreciates that the subject is controversial and that tracheotomy is a procedure which is not to be resorted to lightly, and which requires a great deal of nursing and medical care in its management. But he takes the middle course and feels that when one sees a large number of poliomyelitis cases, a few will present indications whereby tracheotomy may be of benefit and the procedure may even be life-saving. Each case must be considered individually, although there can be the tendency to resort to the procedure when it is too late to be of benefit.

Dr. Lenarsky mentioned that in 1947 two bulbar poliomyelitis patients were tracheotomized at the Willard Parker Hospital and both died. In 1948, two hundred and three poliomyelitis patients were treated at this hospital, 45 of whom had bulbar involvement. Five seriously ill patients had tracheotomies. Two of these died within a short period after the operation, and one, a bulbospinal (respirator) case died 54 days later. Two patients have survived—one with bilateral abductor vocal cord paralysis who has been discharged from the hospital, and the other a severely involved bulbospinal case who is still being treated in the respirator. Although it is difficult to judge, it would seem that three patients were definitely aided by the tracheotomy and very likely the procedure helped to carry them through their acute illness. It is felt that the operation did no harm in any instance.

DR. ROSENBLUTH. Any further discussion?

DR. PARR. Why did not the x-rays show the involvement as the slides did?

DR. SEANOR. No pictures were taken after the patient was put into the respirator. I believe that the atelectasis was due in a degree to the tracheotomy or, perhaps, to the negative pressure in the respirator.

DR. ROSENBLUTH. As this is the only case we have, Dr. Dolgopol will show some slides from an old case of relapse of poliomyelitis.

DR. DOLGOPOL. This is a case of a patient that was in the respirator for 9 months after the attack of polio. This was a case of a 39-year-old female, admitted to Willard Parker Hospital on October 12, 1946. History: Sudden onset of fever, vomiting, pain in back on October 9, 1946, followed by a stiff neck and back. On October 10, 1946, weakness of upper extremities, slurred speech, considerable accumulation of mucus. On admission, respirations were shallow, rapid and diaphragmatic. Patient, drowsy. No intercostal or extremity muscle function was noted. The patient was placed in respirator and oxygen given. After several episodes of cyanosis, temperature fell to normal in four days, drowsiness disappeared. On October 29, 1946, patient was disoriented and talked in fantasy. This disappeared in one week.

Peripheral muscle never returned to function. The patient was

paralyzed from the neck down save the diaphragm. Attempts to remove the patient from the respirator caused excitation, fear, confusion, followed by cyanosis. The patient tolerated 20 minutes outside respirator but needed nasal oxygen. Even under these measures, patient became cyanotic on several occasions and heroic measures were necessary for revival. The patient had acute bouts of diarrhea which were controlled with paregoric.

The patient's course was gradually down hill for the next several months. There was a generalized atrophy of musculature; patient continued to show little desire to live.

On June 25, 1947 patient became comatose and cyanotic; she failed to respond to heroic measures; pronounced dead 9:16 A. M.

Spinal tap (October 31, 1946): Clear. Pandy—trace W.B.C.—5 cmm. Sugar—77 per cent. Remainder of laboratory findings of no significance.

Microscopic slides from the cord and medulla were shown in which, besides the old damage of the tissue, with glial repair, there was evidence of acute damage in some of the preserved cells, with neuronophagia.

HUMAN TUBERCULOSIS DUE TO AVIAN BACILLI. (New Zealand Medical Journal, Wellington, 47:362, Aug. 1948). According to Finlayson tuberculosis in human beings caused by the avian bacillus is rare. The case reported here was the first one observed in New Zealand. This avian bacillus was encountered in the course of routine typing of acid-fast bacilli isolated from human cases of extrapulmonary tuberculosis. The patient was a 14-year-old girl with a swelling in the neck below the angle of the jaw. At operation an enlarged lymph node was removed. The organism was isolated on yolk-enriched egg medium. The organism emulsifies readily in water and saline solution. In this respect it is like avian and unlike human or bovine bacilli. Colonies of the bacillus show glycerophilism, and on mediums containing glycerol are pigmented (ochre), thus conforming to avian type. The organism is highly virulent for rabbits and chickens. It is capable of producing an active tuberculin that gave positive results with chickens which had been infected with an authentic strain of *Mycobacterium avium*.—*Journal A.M.A.*

DEPARTMENT OF ABSTRACTS

BRUSA, P.: APPARENT CURE OF INFANTILE ASTHMA WITH THE USE OF A PREPARATION DERIVED FROM PREGNANT WOMAN'S URINE. (Il Lattante, 20:1, January 1949).

The author reviews the literature on the use of hormones derived from pregnant woman's urine in the treatment of infantile asthma. He believes that the favorable results obtained were not due to the gonadotropins derived from the urine but rather from some other substance which was present in the hormones as an impurity. A substance was isolated from pregnant woman's urine by Dr. L. Callegari of the Milan Institute of Serotherapy (I.S.M.) and is known as substance C., presumably named for Callegari. This substance is not a hormone. It was used by the author parenterally in a series of injections in five cases of asthma in children ranging in age from two to fifteen years. All the cases were asthmatics of long duration and were intractable to other forms of treatment. The results obtained with the so-called substance C. were very favorable

MICHAEL A. BRESCIA, M.D.

VERAS, S. AND MYSTAKIDIS, A.: TREATMENT AND CURE OF A CASE OF B. COLI MENINGITIS WITH STREPTOMYCIN. (Pediatrie, 38:209, March 1949).

The authors report the case of B. coli meningitis in a child of two and a half years. During the first four days of illness the child had high temperatures, headache and vomiting. These symptoms did not subside on penicillin treatment. The child was then admitted to the hospital with marked elevation of temperature (38.6 C.), stiff neck and positive Kernig and Brudzinski. Spinal puncture revealed cloudy fluid which, on culture, yielded a gram-negative bacillus. W.B.C. 13,000 with 70 per cent polymorphonuclear leukocytes, 27 per cent lymphocytes and 3 per cent monocytes. Urinalysis essentially negative and the Mantoux was also negative. The child was given sulfathiazol, four grams daily for four days, without any apparent effect on the course of the illness. When the culture report revealed the B. coli, the infant was placed on streptomycin. The child was given 0.1 gm. of streptomycin every three hours intramuscularly and 0.1 gm. intrathecally once a day. The child gradually improved and received

the streptomycin for 18 days for a total of 16 grams. Before discharge a cisternal puncture was done which yielded clear fluid and no growth on culture.

MICHAEL A. BRESCIA, M.D.

SARROUY, C.; COMBE, P. AND CABANNES: SUBACUTE BACTERIAL ENDOCARDITIS SUPERIMPOSED ON ROGER'S DISEASE TREATED WITH PENICILLIN AND SUMÉDINE. (*L'Algérie Médicale*, 53:209, June-July 1949).

The authors report on a three-year cure of a case of subacute bacterial endocarditis which complicated a congenital heart disease. The cure was accomplished by the use of sulfapyridine, penicillin and sumédine which is another sulfonamide. The case is that of a thirteen-year-old boy who became ill with unexplained temperature elevation which was finally diagnosed as subacute bacterial endocarditis because of the positive blood culture which was obtained. For the first four days of treatment the boy was given sulfapyridine (dagenan), both intravenously and orally. This medication was discontinued because of vomiting, headache and cyanosis. However, after two days of sulfapyridine, the temperature was normal for the first time in almost a month of illness. Penicillin was then given in various ways from December 7 to February 20 for a total of 34,080,000 units. However, the blood cultures remained positive for the hemolytic streptococcus. The boy was then given sumédine, orally, from February 16 to February 24 for a total of 50 grams. The drug was discontinued after nine days because of blood in the urine. However, two blood cultures, one taken in March and one in April, were negative. During the hospital stay the boy had several acute attacks of pain in the abdomen and chest which were attributed to small embolic phenomenon. Sumédine is chemically p. amino-benzene-sulfonyl-amino 2-methyl-4-diazine.

MICHAEL A. BRESCIA, M.D.

SORREL-DÉJÉRINE AND SORREL, E.: STREPTOMYCIN IN TUBERCULOSIS OF BONE. (*La Presse Médicale*, 57:526, June 11, 1949).

The authors report on 302 cases of tuberculosis of the bone. The doses of streptomycin used were as follows: under five years of age 0.25 gm., between 5 and fifteen years of age 0.5 gm. and in the adult 1.0 gm. given in two injections during a twenty-four hour period and given for 120 days. The effect of the medication

on the general condition was very good. Fistulas closed rapidly in nineteen of twenty-one cases. The drug was most effective in the acute cases but not too effective in "cold" abscesses or in Pott's disease. The streptomycin also made possible many operations which otherwise could not have been done and the healing following the surgery was always very good.

MICHAEL A. BRESCIA, M.D.

CIOGLIA, L. AND PINNA, P.: THE TREATMENT OF SALMONELLA INFECTIONS WITH MICETINA. AN ANTIBIOTIC PRODUCT OF A CEPHALOSPORIUM. (*Annali Italiani di Pediatria*, 2:41, Feb. 1949).

The authors have used an antibiotic called micetina derived from a cephalosporium in the treatment of typhoid and paratyphoid fevers with very favorable results. This antibiotic has been shown to have wide range of activity including gram-positive cocci, salmonella, brucella, vibrio cholera, *P. pestis*, *B. anthracis* and also against other trichophyton. The authors used micetina in the treatment of fifteen case of typhoid and paratyphoid fever in children ranging in ages from two and a half to thirteen years. The antibiotic was started in the cases from the seventh to the twenty-first day of illness after a definite serological or cultural diagnosis was established. The results were very good in fourteen of the fifteen cases. The antibiotic can be used either intramuscularly or rectally. The authors favor the rectal route because of the ease of administration and the tendency for local reactions at the site of injection.

MICHAEL A. BRESCIA, M.D.

LEONE, A.: TRANSITORY HYPERTHYROID SYNDROME IN AN INFANT OF ONE AND A HALF MONTHS. (*Annali Italiani di Pediatria*, 2:160 April 1949).

The author reviews the literature and notes the infrequency of hyperthyroid syndromes in young children and infants and the rarity of hyperthyroid symptoms in the newborn. A case is presented of a 40-day-old infant with bilateral enlargement of the thyroid gland with symptoms of hyperthyroidism. The parents noted that the gland began to enlarge shortly after birth and continued to do so until brought under observation. The gland was firm and not movable. The thymus gland was not enlarged when x-ray study of chest was done. There were no symptoms of res-

piratory difficulty. The infant, however, was hyperirritable, the skin and mucous membranes were pale, there was a fine tremor of all the extremities, the pulse rate was 166 and regular, blood pressure 70/45, the eyes were protruding but no pathological eye signs were elicited. X-ray of the skull revealed closure of the fontanel and the suture lines were those of a child of 10 to 12 months. The urine was normal. R.B.C. 3,980,000, with 40 per cent hemoglobin. The blood cholesterol was 125 and the fasting blood sugar was 140. The basal metabolic rate was plus 33. This was done while the child was sleeping with a mask placed over the face. The infant was given 30,000 I.U. of vitamin A daily and in ten days the thyroid gland began to recede and the symptoms of hyperthyroidism began to abate. At the end of six months the child is free from all symptoms of hyperthyroidism but is still hyperirritable.

MICHAEL A. BRESCIA, M.D.

LELONG, M. ET AL.: Mongol Delivered of a Mongolian Infant. (*La Presse Médicale*, 57:573, June 18, 1949).

The authors report the very rare occurrence of a mongol giving birth to a typically mongolian infant. The infant died six weeks after birth. The autopsy revealed congenital heart disease. The authors discussed the pros and cons of the heredity of mongolism but are not prepared to say whether or not mongolism is hereditary.

MICHAEL A. BRESCIA, M.D.

DOLLFUS, M.A.: Eye Lesions in Acute Leukemia of Infants. (*La Presse Médicale*, 57:734, Aug. 6, 1949).

The author describes typical eye lesions in six of eight cases of acute leukemia. The lesions consist of fusiform retinal hemorrhages and papillary edema. These lesions subside with the remissions of the disease only to recur again during the terminal phases of the disease. In addition to the typical fusiform hemorrhage the retina shows other atypical hemorrhages with little retinal exudate.

MICHAEL A. BRESCIA, M.D.

BOOK REVIEW

SOME ASPECTS OF HOSTILITY IN YOUNG CHILDREN. By Anneliese Friedsam Korner. Cloth. Price \$3.50. Pp. X+194. New York: Grune & Stratton, Inc., 1949.

This is a detailed scientific report of a well-controlled study designed to investigate the feeling of hostility in small children against their parents or parent substitutes. Hostility and aggression were investigated both in real life situations and play. Pediatricians may not be interested in following details of the study but they will be interested in the findings. Among other items, it was found that although all children gave some evidences of hostility, hostility in play did not necessarily mean hostility in real life and real hostile feelings did not necessarily find expression in play. It was found that some children use play to work out their hostile feelings but, in others, these feelings are too intense. Hostility, per se, in play cannot be taken as an indicator of a child's emotional adjustment. Children were found to show hostility in real life because of anxiety or to retaliate or to punish. They repressed hostility because of fear that it would cause loss of affection or because they had worked out their hostility in play. Children whose parents were impulsive and used corporal punishment tended toward aggressiveness. Parental rejection produced different results in different children. It is the child's adaptation to hostile feelings and the resulting guilt and anxiety in relation to these feelings that is important. Although these conclusions were based on the study of only twenty children, the findings did suggest that "a highly dynamic and individualized theory of personality is needed in exploring so basic and complex a phenomenon as aggression." Pediatricians who may have questioned some of the superficial diagnosis of children's behavior problems on the basis of merely play behavior will be glad to know that the problem is an accomplished and individual one. They may want to study this monograph for themselves so that they can better advise parents who bring their children's behavior problems to them for help.

HELEN THOMPSON, PH.D.



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